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Interventions and Management

1.Improving Parent and Therapist Experiences of Codelivering Intensive Upper Limb Interventions for Children With Hemiplegia: A Qualitative Study Using the Theoretical Domains Framework

Jill Massey, Vicki Tsianakas, Anne Gordon, Glenn Robert

Child Care Health Dev . 2025 Mar;51(2):e70040. doi: 10.1111/cch.70040.

Background: Partnership working between parents and therapists is a key component of family-centred care (FCC). Such partnerships in paediatric intervention delivery can help achieve required levels of dosage, intensity and embed interventions in the child's everyday activities. This study explores the experience and views of parents and therapists codelivering an intensive upper limb intervention programme for children with hemiplegia, to find ways to enhance successful partnership working.
Methods: Semistructured interviews were conducted with 12 parents and 8 therapists (3 hospital-based and 5 community-based). To help make evidence-based recommendations, data were analysed using inductive reflexive analysis and mapped to the Theoretical Domains Framework (TDF) of constructs that are common determinants of clinical behaviours or practices.
Results: Five major themes were identified as follows: (1) realities of accessing intensive intervention, (2) key components of intervention delivery, (3) role of goal setting, (4) importance of partnership and (5) impact of intervention delivery on parents. Our findings showed that overall parents valued involvement in the programme, acknowledging benefits and challenges, as well as aspects in which they needed further support. Hospital therapists identified various education and training needs to improve their capabilities to coach parents and to collaboratively set meaningful goals. Community therapists valued the opportunity to develop their skills in intensive intervention and were keen to see evidence-based interventions offered in the community.
Conclusions: It is possible for parents, hospital therapists and community therapists to codeliver intensive upper limb intervention programmes to children with hemiplegia. However, it is important to create a flexible programme which clearly acknowledges the roles, skills and unique contributions of parents and therapists which is conducive to truly equal partnership working in appropriate settings.
PMID: 39871775

2.Botulinum toxin injections for the treatment of hip instability in the pediatric population with cerebral palsy: a systematic review

Debra A Sala, Eduardo Del Rosario

Int J Rehabil Res . 2025 Jan 28. doi: 10.1097/MRR.0000000000000659. Online ahead of print.

Abstract

The purpose of this review was to examine the effects of hip muscle botulinum toxin injections for the treatment of hip instability reported in studies of children with cerebral palsy. Searches in PubMed, CINAHL, and Web of Science were performed using the term hips combined with botulinum toxin and its various abbreviations and brand names. Reference lists and citations of the reviewed studies were also searched. Nine studies were reviewed: two randomized controlled trials plus a subsequent long-term follow-up of one of them, and six nonrandomized studies of interventions with two including comparison group(s) and four being single group pre-post studies. Hip adductors were injected in all studies with other hip muscles added in most cases. The outcome measure analyzed was the change in migration percentage defined as postinjection minus preinjection migration percentage with the recommendation of a change of ±10% indicating a true change. Only two studies reported a change exceeding this criterion. One randomized controlled trial demonstrated a 10.4% improvement in the botulinum toxin-treated group, which was statistically significantly greater than a 2.95% worsening in the comparison group. Additionally, a preliminary study of five participants found a statistically significant median change of ≥10% at two of the eight follow-up time points. Therefore, the results of most studies showed neither postinjection improvement nor worsening of this magnitude. The low level of rigorousness of the reviewed studies suggests that any of the results should be viewed cautiously.

PMID: 39869424

3.Effects of spinal stimulation and short-burst treadmill training on gait biomechanics in children with cerebral palsy

Charlotte R DeVol, Siddhi R Shrivastav, Victoria M Landrum, Kristie F Bjornson, Desiree Roge, Chet T Moritz, Katherine M Steele

Gait Posture . 2025 Jan 29:118:25-32. doi: 10.1016/j.gaitpost.2025.01.016. Online ahead of print.

Background: Children with cerebral palsy (CP) have an injury to the central nervous system around the time of birth that affects the development of the brain and spinal cord. This injury leads to changes in gait neuromechanics, including muscle activity and joint kinematics. Transcutaneous spinal cord stimulation (tSCS) is a novel neuromodulation technique that may improve movement and coordination in children with CP when paired with targeted physical therapy.
Research question: How does the combination of tSCS and short-burst interval locomotor treadmill training (SBLTT) affect individual gait neuromechanics in children with CP?
Methods: Four children with CP (4-13 years old), received 24 sessions each of SBLTT only and SBLTT with tSCS (tSCS+SBLTT). Clinical assessments of spasticity and passive range of motion (PROM), as well as biomechanical assessments of joint kinematics, musculotendon lengths, and muscle activity were recorded during overground, barefoot walking. Assessments were taken before and after each intervention, and 8-weeks later.
Results: The combination of tSCS+SBLTT led to greater increases in hip and knee extension than SBLTT only for three participants. Three children also became more plantarflexed at the ankle during stance after tSCS+SBLTT compared to SBLTT only. While tSCS+SBLTT reduced spasticity, these changes were only weakly correlated with changes in musculotendon lengths during gait or PROM, with the largest correlation between change in gastrocnemius operating musculotendon length during fast walking and gastrocnemius spasticity ($R2 = 0.26$) and change in plantarflexor PROM and gastrocnemius spasticity ($R2 = 0.23$).
Significance: Children with CP used a more upright, less crouched posture during gait after tSCS+SBLTT. Large reductions in spasticity after tSCS+SBLTT were only weakly correlated with changes in kinematics and PROM. Understanding the mechanisms by which tSCS may affect gait for children with CP is critical to optimize and inform the use of tSCS for clinical care.

PMID: 39884154

4.Development of bone mineral density and content in children with cerebral palsy: a retrospective, longitudinal study

Philipp Koebke, Leonie Schafmeyer, Bruno Lentzen, Titus Keller, Eckhard Schoenau, Ibrahim Duran

J Pediatr Endocrinol Metab . 2025 Jan 31. doi: 10.1515/jpem-2024-0519. Online ahead of print.

Objectives: The aim of this study was to investigate long-term bone development in children with cerebral palsy (CP) using longitudinal measurements of total body less head bone mineral content (TBLH-BMC) and bone mineral density (TBLH-BMD).
Methods: A retrospective longitudinal analysis was performed on 109 children with CP who participated in a rehabilitation programme from 2006 to 2018. Dual-energy X-ray absorptiometry (DXA) scans were performed at the beginning of the programme and repeated as clinically indicated. The study used SITAR growth curve analysis and the LMS method within the GAMLSS model to generate developmental trajectories for TBLH-BMC and TBLH-BMD.
Results: The findings suggest that the expected developmental trajectories of TBLH-BMC and TBLH-BMD in children with CP approximately follow the third percentile of healthy children. The median annual increase in bone mineral density was similar between GMFCS I-II and III-V groups at 5.12 and 5.79 %, respectively. Girls with CP reached age at peak velocity (APV) earlier than boys. The intensive exercise programme may have contributed to greater annual bone growth in children with more severe CP.
Conclusions: Children with CP have bone growth trajectories close to the third percentile of their healthy peers, suggesting that age-adjusted z-scores for TBLH-BMC and BMD remain relatively stable throughout childhood and adolescence. Early and targeted interventions, including improving muscle strength and mobility and optimising nutritional and hormonal status, are essential to promote better bone health and quality of life in children with CP.
PMID: 39882784

5.Artificial intelligent based control strategy for reach and grasp of multi-objects using brain-controlled robotic arm system

Kerlin Sara Wilson, K K Saravanan

Network . 2025 Jan 30:1-29. doi: 10.1080/0954898X.2025.2453620. Online ahead of print.

Abstract
Brain-controlled robotic arm systems are designed to provide a method of communication and control for individuals with limited mobility or communication abilities. These systems can be beneficial for people who have suffered from a spinal cord injury, stroke, or neurological disease that affects their motor abilities. The ability of a person to control a robotic arm to reach and grasp multiple objects using their brain signals. This technology involves the use of an electroencephalogram (EEG) cap that captures the electrical activity in the user's brain, which is then processed by an artificial intelligent to translate it into commands that control the movements of the robotic arm. With this technology, individuals who are unable to move their limbs due to paralysis or other conditions can still perform daily activities such as feeding themselves, drinking from a glass, or grasping objects. In this paper, we propose an artificial intelligent-based control strategy for reach and grasp of multi-objects using brain-controlled robotic arm system. The proposed control strategy consists of threefold process: feature extraction, feature optimization, and control strategy classification. Initially, we design an improved ResNet pre-trained architecture for deep feature extraction from the given EEG signal.
PMID: 39885677

6.Wearable sensors in paediatric neurology

Camila González Barral, Laurent Servais

Dev Med Child Neurol . 2025 Jan 31. doi: 10.1111/dmcn.16239. Online ahead of print.

Abstract
Wearable sensors have the potential to transform diagnosis, monitoring, and management of children who have neurological conditions. Traditional methods for assessing neurological disorders rely on clinical scales and subjective measures. The snapshot of the disease progression at a particular time point, lack of cooperation by the children during assessments, and susceptibility to bias limit the utility of these measures. Wearable sensors, which capture data continuously in natural settings, offer a non-invasive and objective alternative to traditional methods. This review examines the role of wearable sensors in various paediatric neurological conditions, including cerebral palsy, epilepsy, autism spectrum disorder, attention-deficit/hyperactivity disorder, as well as Rett syndrome, Down syndrome, Angelman syndrome, Prader-Willi syndrome, neuromuscular disorders such as Duchenne muscular dystrophy and spinal muscular atrophy, ataxia, Gaucher disease, headaches, and sleep disorders. The review highlights their application in tracking motor function, seizure activity, and daily movement patterns to gain insights into disease progression and therapeutic response. Although challenges related to population size, compliance, ethics, and regulatory approval remain, wearable technology promises to improve clinical trials and outcomes for patients in paediatric neurology.
PMID: 39888848

7.The relationship between pneumonia and dental visits in patients with cerebral palsy: A nationwide registry-based cohort study in Taiwan

Fu-Hsuan Liu, Jing-Yang Huang, Yu-Chao Chang

J Dent Sci . 2025 Jan;20(1):118-125. doi: 10.1016/j.jds.2024.09.019. Epub 2024 Oct 2.

Background/purpose: In general, improving oral health can reduce the risk of pneumonia. The purpose of this retrospective cohort study was to investigate the risk of pneumonia between cerebral palsy (CP) cohort and non-CP cohort as well as the association of pneumonia with the number of dental visits in CP patients in Taiwan.
Materials and methods: We identified 10,544 patients who were diagnosed with CP between 2010 and 2019 from the Taiwan National Health Insurance Research Database. 63,264 individuals who had never been diagnosed with CP were captured and matched in a 6:1 ratio. Cox proportional hazard regression analysis was adopted to assess the hazard ratio (HR) of pneumonia between CP cohort and non-CP cohort.
Results: Our findings demonstrated that CP cohort had 2.619-fold risk for pneumonia as compared with non-CP cohort after adjustment (95 % CI = 2.574-2.813, $P < 0.0001$). Cox regression analysis indicated that the CP group had significantly higher incidence risk of pneumonia (log rank $P < 0.0001$). Higher risks of pneumonia in CP patients were associated with younger age, and lower urbanization level. Some comorbidities as well as history of pneumonia had the higher aHR for pneumonia within 180 days prior to index date. In addition, there was a positive association with the more than two dental visits for the decrease 0.887-fold incidence of pneumonia in CP-cohort as compared with no dental visit (95 % CI: 0.799-0.984).
Conclusion: Taken together, CP patients had a higher risk of pneumonia. Dental visits are beneficial for preventing the risk of pneumonia in CP patients. The patients with CP should receive regular dental checkup.
PMID: 39873053

8."I'm not sad anymore, I'm proud to have such a child": The experiences of caregivers of dependents with cerebral palsy living in Greece

Angeliki Bistaraki, Nikos Stefanopoulos, Panagiotis Kiekkas, Dimitra Stamatopoulou, Michael Igoumenidis

J Pediatr Nurs . 2025 Jan 27:81:89-96. doi: 10.1016/j.pedn.2024.12.007. Online ahead of print.

Background: People with cerebral palsy are largely dependent on their caregivers, who are most often members of their family. Caring for people with disabilities can be challenging as both dependents and caregivers face problems of social isolation and stigmatization.
Aim: The aim of this study was to understand the experiences of caregivers of dependents with cerebral palsy in Greece.
Methods: We conducted a qualitative study utilizing a descriptive phenomenological design. A purposive sample of 20 caregivers was employed and data was collected through semi-structured in-depth interviews. Data analysis was conducted using the 7 steps of Colaizzi's method.
Results: Three themes emerged from the data analysis: a) family cohesion and emotional status, b) social and professional support and c) facing stigma. All caregivers reported negative feelings such as sadness, disappointment, fear and anger and agreed that the region of Western Greece lacks appropriate infrastructure for people with cerebral palsy. Most of the participants exhibited high levels of internalized shame in the sense that the stigma attached to their child led to feelings of self-blame.
Conclusion: This study suggests that it is important to develop structural and community interventions to support carers and establish new strategies for better educated and empathetic nurses and other health professionals.
PMID: 39874623

9.Cerebral palsy and perinatal mortality in children born in Norway to immigrant mothers

Maria Wiedswang Sigholt, Guro L Andersen, Stian Lydersen, Liv Cecilie Vestrheim Thomsen, Torstein Vik, Sandra Julsen Hollung

Dev Med Child Neurol . 2025 Jan 30. doi: 10.1111/dmcn.16253. Online ahead of print.

Aim: To compare the prevalence and clinical characteristics of cerebral palsy (CP), and perinatal mortality, in children born to non-immigrant mothers with children born to immigrant mothers.
Method: This was a registry-based cross-sectional study. Data on children born from 2000 to 2016 were extracted from the Medical Birth Registry of Norway and linked to the Norwegian Quality and Surveillance Registry for Cerebral Palsy. The mother's country of birth was categorized into three groups: non-immigrant (born in Norway); immigrant from high-income countries (HICs); and immigrant from low- and middle-income countries (LMICs) (born abroad giving birth in Norway). Birth prevalence of CP and prevalence of perinatal mortality per 1000 live births were calculated. Odds ratios (ORs) for CP among live-born children of non-immigrant mothers compared to mothers from HICs and LMICs were calculated using logistic regression, both unadjusted and adjusted for each risk factor for CP. Pearson χ^2 tests were used to compare the proportions of clinical characteristics.
Results: The prevalence of CP among non-immigrant mothers was 2.11 per 1000 live births, 1.44 among mothers from HICs, and 1.71 among mothers from LMICs. The OR for CP in mothers from HICs was 0.68 and 0.81 in mothers from LMICs. Despite mothers from LMICs having higher proportions of consanguinity and lower folate intake, and their children having lower Apgar scores, the ORs for CP were unchanged after adjusting for these. Yet, children born to mothers from LMICs had higher perinatal mortality; their children with CP had higher proportions of intellectual disability.
Interpretation: The lower birth prevalence of CP among children born to mothers from LMICs was unexpected. Yet, children born to mothers from LMICs had higher perinatal mortality, which could impact the number of live-born children with CP.
PMID: 39887728

10.Developing a Profile of Canadian Children With Cerebral Palsy Who Require Augmentative and Alternative Communication

Juno Coan-Brill, Frances Aileen Costigan, Jessica Kay, Kristine Stadskleiv, Beata Batorowicz, Tom Chau, Johanna Geytenbeek, Danijela Grahovac, Sarah Hopmans, Barbara Jane Cunningham

Am J Speech Lang Pathol . 2025 Jan 29:1-12. doi: 10.1044/2024_AJSLP-24-00284. Online ahead of print.

Purpose: Cerebral palsy (CP) is the most prevalent motor disability affecting children. Many children with CP have significant speech difficulties and require augmentative and alternative communication (AAC) to participate in communication. Despite demonstrable benefits, the use of AAC systems among children with CP remains constrained, although research in Canada is lacking.
Method: Data were collected as part of an exploratory survey of Canadian caregivers and clinicians (N = 60) who shared their perspectives on children's need for, access to, and use of AAC systems. Quantitative data were summarized using descriptive statistics. Qualitative data were analyzed using inductive content analysis.
Results: Caregivers and clinicians reported high rates of need for AAC systems (> 75%) among children with CP. Both groups reported that access was roughly equivalent to need, although caregiver reports were lower. Despite high rates of need and access, only 38% of children used AAC systems. Children who used AAC primarily used high-tech systems, mostly to make choices, rather than engaging in meaningful reciprocal interactions and conversations.
Conclusions: Canadian children with CP who required AAC systems generally received them. However, AAC systems were not used to their full potential, suggesting limited participation in social and learning situations. Like reports on other pediatric populations, barriers to obtaining AAC systems related to service, family, and child-specific factors. Although our sample captured the complexity present in the CP population, sample sizes were small and unlikely to be representative of the population of Canada, indicating the need for further research on a national scale.
PMID: 39879487

11.From publication to action for early detection, surveillance and intervention in cerebral palsy in Spain - who, how and now. Authors reply

Miriam Martínez-Biarge, Montesclaros Hortigüela, David Conejo, Juan Arnaez

An Pediatr (Engl Ed) . 2025 Jan 27:503734. doi: 10.1016/j.anpede.2025.503734. Online ahead of print.

No abstract available
PMID: 39875244

12.The effects of extracorporeal shock wave therapy in children with cerebral palsy: a systematic review

Eline G de Roo, Sanne B Koopman, Thijs W Janssen, Wendy F M Aertssen

Int J Surg . 2025 Jan 28. doi: 10.1097/JS9.0000000000002251. Online ahead of print.

Introduction: Spastic Cerebral Palsy (CP) is a major cause of movement disorders in pediatric rehabilitation. Current treatments are often invasive and may lead to substantial discomfort. Extracorporeal shockwave therapy (ESWT) presents a potential alternative, offering a less invasive approach with a reduced side effect profile. However, the impact of ESWT on children with CP remains unclear. This systematic review aims to summarize the current evidence on ESWT's impact in children with spastic CP across various domains of the International Classification of Functioning, Disability, and Health for Children and Youth.
Method: To answer the main question, a systematic literature study is used. The studies, collected from four databases, were screened and data on outcome measures and methodological quality were extracted. Effect sizes were calculated to facilitate study comparison.
Results: In total, twelve randomized controlled trials met inclusion criteria, with PEDro scores ranging from three to eight. The combined study population included 421 children. Positive effects were observed on resistance to passive movements, passive range of motion, and gross motor skills, with effect sizes ranging from moderate (0.65) to very large (7.69).
Conclusion: ESWT demonstrated positive effects across multiple domains in children with spastic CP.
PMID: 39878070

13.The tragedy of promising happiness through overcoming disability

Olivia Dahl, Merete Monrad

Soc Sci Med . 2025 Jan 27:367:117769. doi: 10.1016/j.socscimed.2025.117769. Online ahead of print.

Abstract
This article explores the often-overlooked tragedy of promising happiness through overcoming disability. It draws on qualitative interviews and focus groups with 36 adults with cerebral palsy to explore how medical discourse shapes the ways in which individuals are encouraged to pursue a good life, leading to unintended consequences. Sara Ahmed's theory of happiness is used to understand the dialectics of pursuing a good life through overcoming disability, revealing how medical interventions and discourse during childhood inadvertently contribute to feelings of inferiority and social alienation. The article highlights the need to reconsider how individuals with disabilities are encouraged to pursue a good life, emphasizing the paradox of disabling effects arising from attempts to minimize and overcome disability.
PMID: 39879892

14.Predictors for Development of Asphyxiated Neonates Treated With Therapeutic Hypothermia

Fabienne Kühne, Nina Wald de Chamorro, Laura Glasmeyer, Maria Grigoryev, Yee Lee Shing, Claudia Buss, Christoph Bührer, Angela M Kaindl

Acta Paediatr . 2025 Jan 29. doi: 10.1111/apa.17598. Online ahead of print.

Aim: To describe the long-term neurodevelopmental outcomes of asphyxiated neonates treated with hypothermia in association with neonatal magnetic resonance imaging (MRI) findings.
Methods: We evaluated, retrospectively, clinical and radiological single-centre data at 0, 2, and 5 years of age of 53 asphyxiated neonates born between 2005 and 2015. Neonatal cranial MRI was re-evaluated using the Weeke score ranging from 0 (normal finding) to 55 (cerebral devastation) by a single neuroradiologist blinded to patient outcomes. Neurodevelopmental outcomes were evaluated using the Bayley Scales of Infant Development (BSID) at 2 years, and tests assessing intellectual performance at 5 years of age.
Results: Of the 191 asphyxiated neonates treated with hypothermia, 53 returned for their 5-year follow-up. There were 10 children with MRI scores ≥ 10, all of whom had epilepsy, 9 had severe cognitive impairment, and 9 had cerebral palsy. In contrast, MRI scores < 10 were poorly predictive of later development. BSID at 2 years of age showed good correlation with IQ scores at 5 years of age ($R_s = 0.58$, $p < 0.001$).
Conclusion: The Weeke score can be used to identify severely impaired children in the neonatal period. In contrast, the neurocognitive test results at 2 years of age were indicative of mild or moderate impairment at 5 years of age.
PMID: 39878089

15.Reliability of the Alberta Infant Motor Scale (AIMS) When Used via Telehealth for Neurodevelopmentally High-Risk Infants

Serena Davies, Barbara R Lucas, Genevieve M Dwyer

Phys Occup Ther Pediatr . 2025 Jan 26:1-14. doi: 10.1080/01942638.2025.2451406. Online ahead of print.

Aims: To assess the reliability of the Alberta Infant Motor Scale (AIMS) when conducted via recorded telehealth sessions by novice and expert raters.
Methods: Ten assessors (six novice, four expert) independently rated recorded telehealth assessments of 23 neurodevelopmentally high-risk infants twice. Inter- and intra-rater reliability of subscale scores, total score and percentile rankings were determined.
Results: AIMS total score inter-rater reliability was excellent across all raters (ICC = 0.92-0.96). Inter-rater-reliability across prone, supine and sitting subscale scores was excellent (ICC = 0.90-0.96) but variable for standing subscale (ICC = 0.06-0.65). Novice total score intra-rater reliability was variable (ICC = 0.45-0.94); expert reliability was excellent (ICC = 0.93-1.00). Recording to real-time telehealth assessment had excellent intra-rater reliability (ICC = 0.96). Time taken to complete the assessment was comparable to a face-to-face assessment (mean: 14.9 min). Novices paused/replayed each video more than experts (2.2 compared to 1.0 in Time 1; and 1.0 compared to 0.5 in Time 2).
Conclusions: The AIMS assessment is reliable when undertaken via telehealth consultation. Time taken to complete the assessment is comparable to a face-to-face assessment. Novice inter-rater reliability was similar to experts. Training and the ability to pause/review infant motor performance may explain the accuracy achieved.

PMID: 39865795

16.Early immune modulation in cerebral palsy medical management of cerebral palsy series

E J Molloy

Pediatr Res . 2025 Jan 26. doi: 10.1038/s41390-025-03798-4. Online ahead of print.

No abstract available
PMID: 39863783

17.General Movements as Predictive Tool of Neurological Outcomes in Term-Born Infants With Hypoxic-Ischemic Encephalopathy at Ages Six and 12 Months

Rudresh Naik, Lokesh Saini, Christa Einspieler, Pradeep Kumar Gunasekaran, Kanya Mukhopadhyay, Prahbhjot Malhi, Arushi Gahlot Saini, Rajni Sharma, Naveen Sankhyan

Pediatr Neurol . 2025 Jan 7:164:58-65. doi: 10.1016/j.pediatrneurol.2025.01.003. Online ahead of print.

Background: To explore the utility of general movements assessment as a predictive tool of the neurological outcome in term-born infants with hypoxic-ischemic encephalopathy (HIE) at ages six and 12 months.
Methods: This prospective observational study was conducted for 18 months (August 2018 to December 2019). Term-born newborns with HIE were included. General movements videos were recorded at 10 to 14 weeks (50 to 54 weeks postmenstrual age) and assessed. Further development was assessed with Developmental Assessment Scales for Indian Infants (DASII) and Ages and Stages Questionnaire, third edition, (ASQ-3) at ages six and 12 months.
Results: A total of 30 children were enrolled, 19 (63%) had normal fidgety movements (FMs) and 11 (37%) had absent FMs. Motor Optimality Score, Revised, (MOS-R) ranged from 6 to 8 in 11 infants with absent FMs. Among them, one had mild developmental delay (DD), two had moderate DD, and eight had severe DD on the DASII assessments ($P < 0.001$). Sensitivity between absent FMs and ASQ-3 developmental scales showed that the majority with absent FMs had severe DD. Absent FMs had 81.8% sensitivity and 89.4% specificity for detecting cerebral palsy (CP) ($n = 11$).
Conclusions: The assessment of the FMs has a very good predictive value for future neurodevelopmental outcomes. MOS-R can provide a fair estimate of the functional ability of infants who later develop CP, and better MOS-R scores correlate with better outcomes. Children with absent FMs had significantly lower median motor and mental developmental quotients as calculated by DASII at both ages six and 12 months.
PMID: 39862710